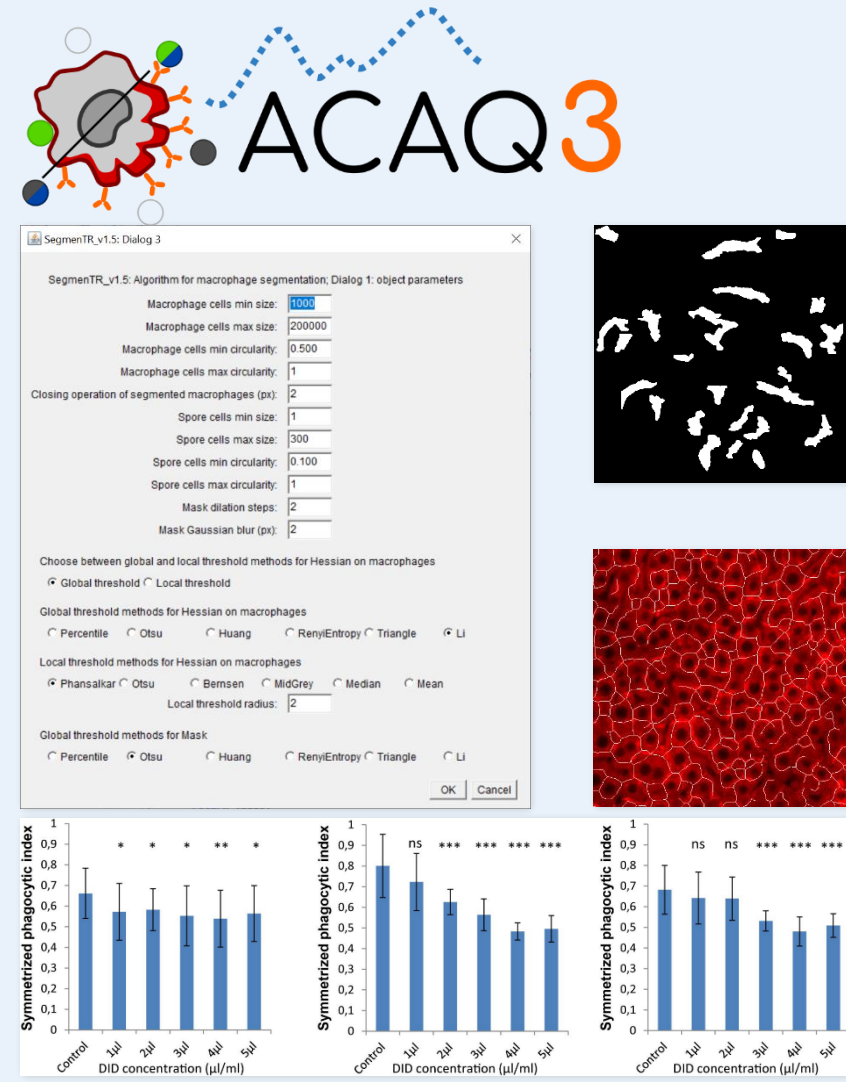
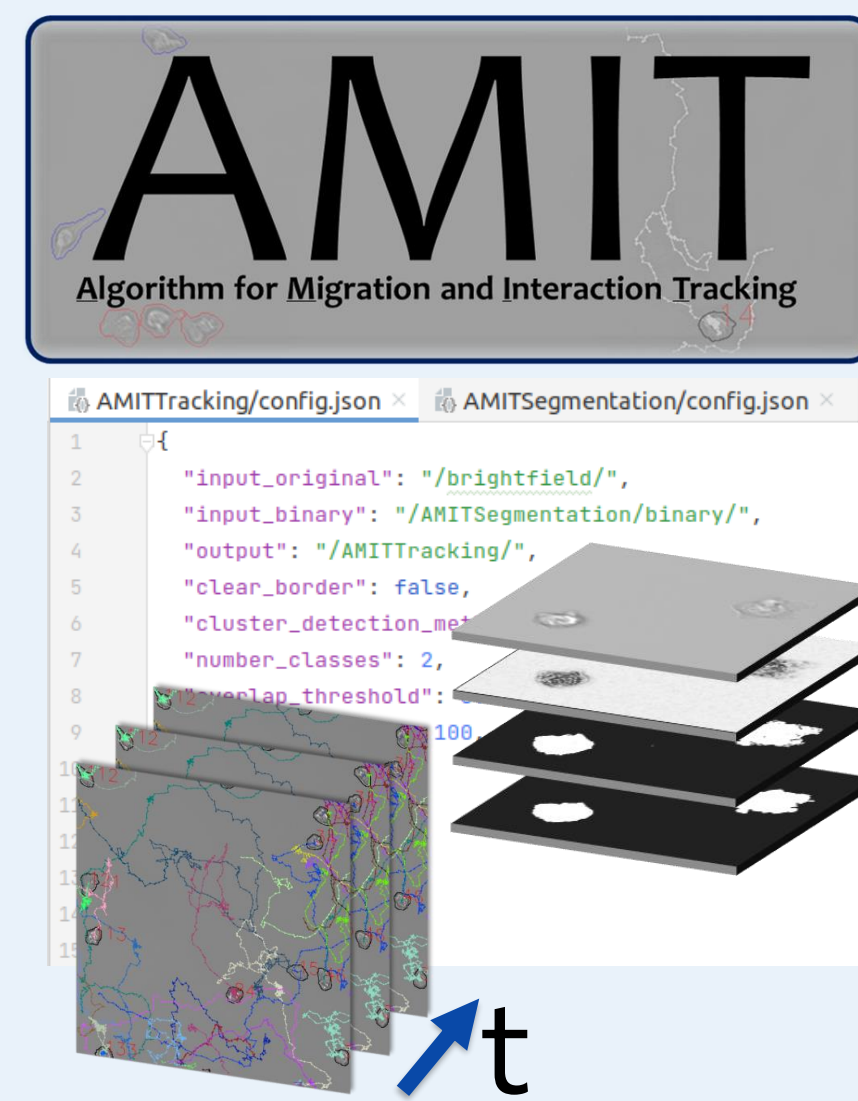


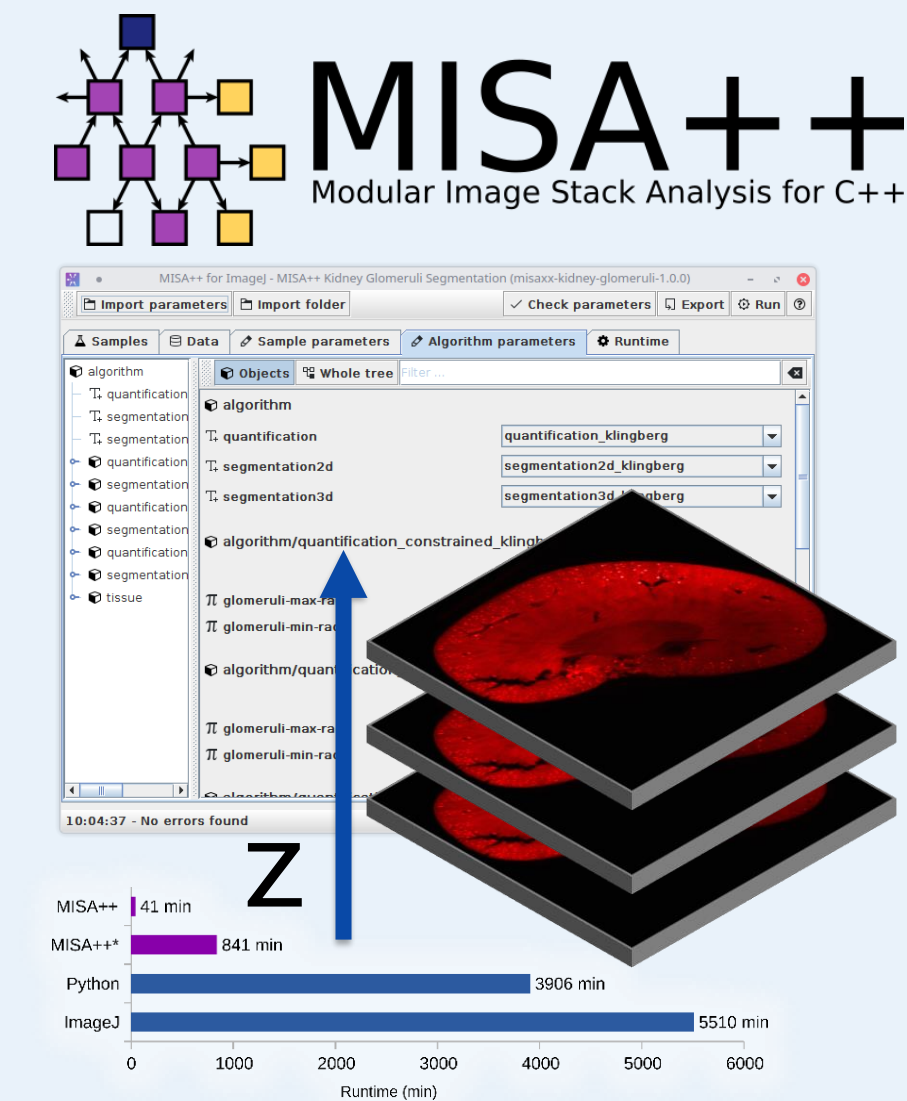
Development of Open-Source Software



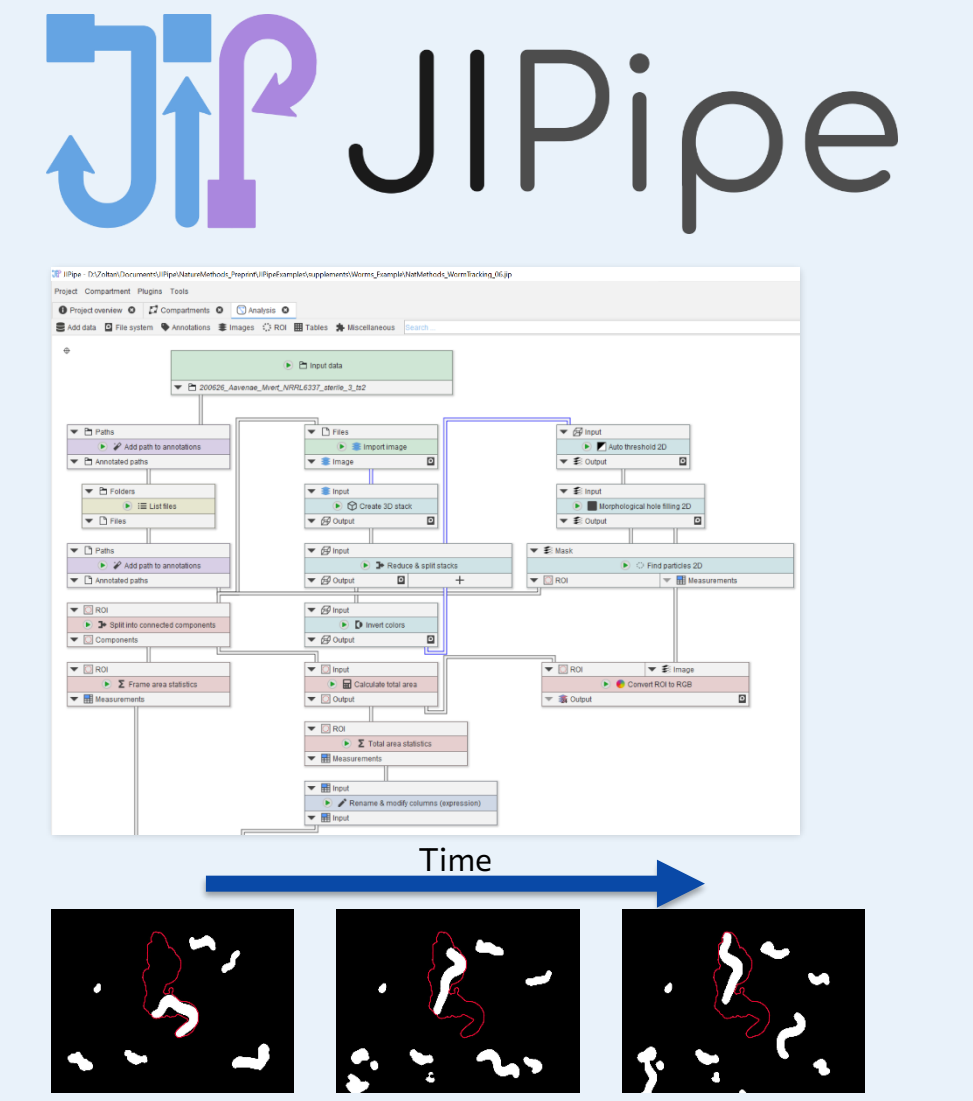
Quantification of confrontation assays



Migration and interaction tracking



High-performance image analysis in C++



Visual programming of image analysis pipelines

QUANTITATIVE CHARACTERIZATION

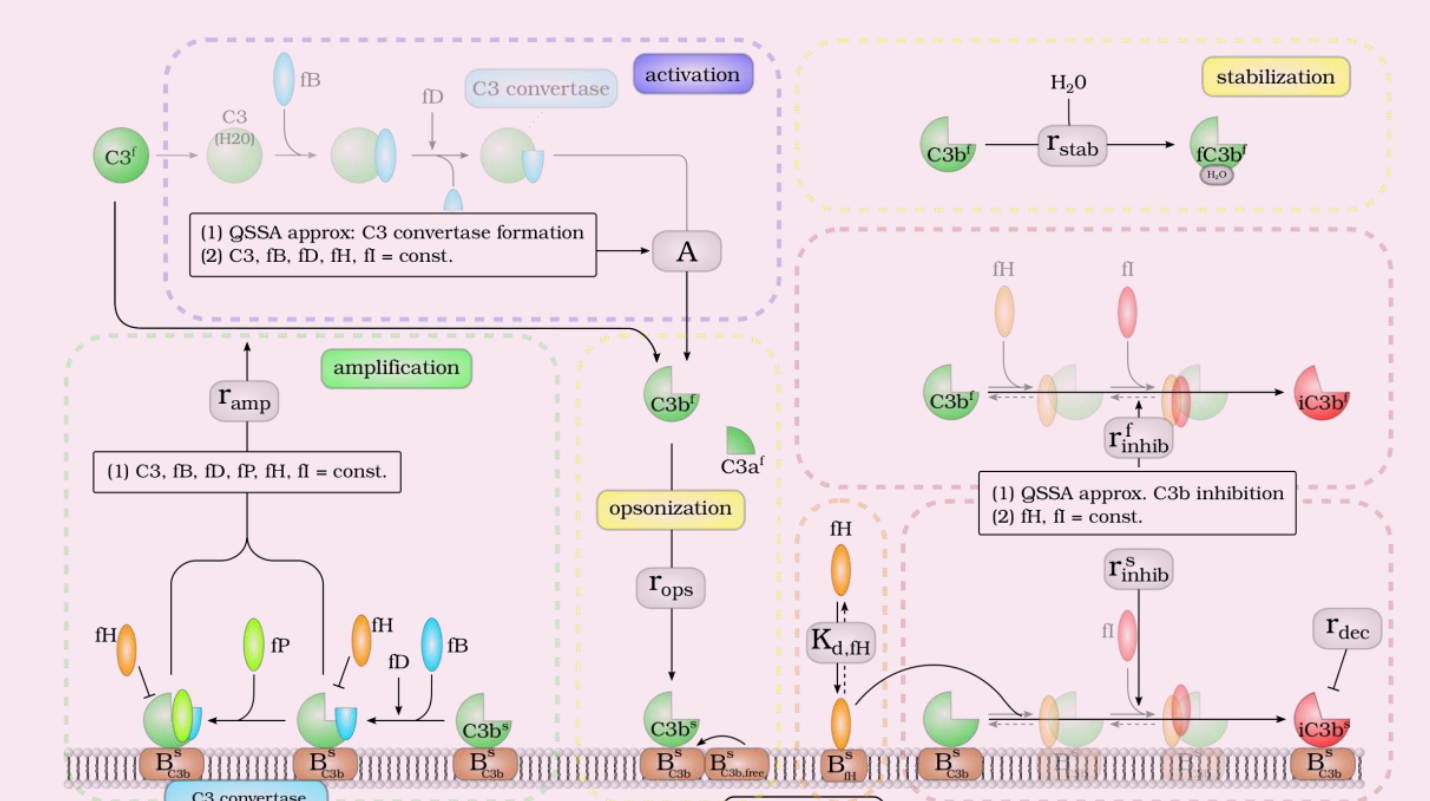


Open-Source-Software

IMAGE ANALYSIS

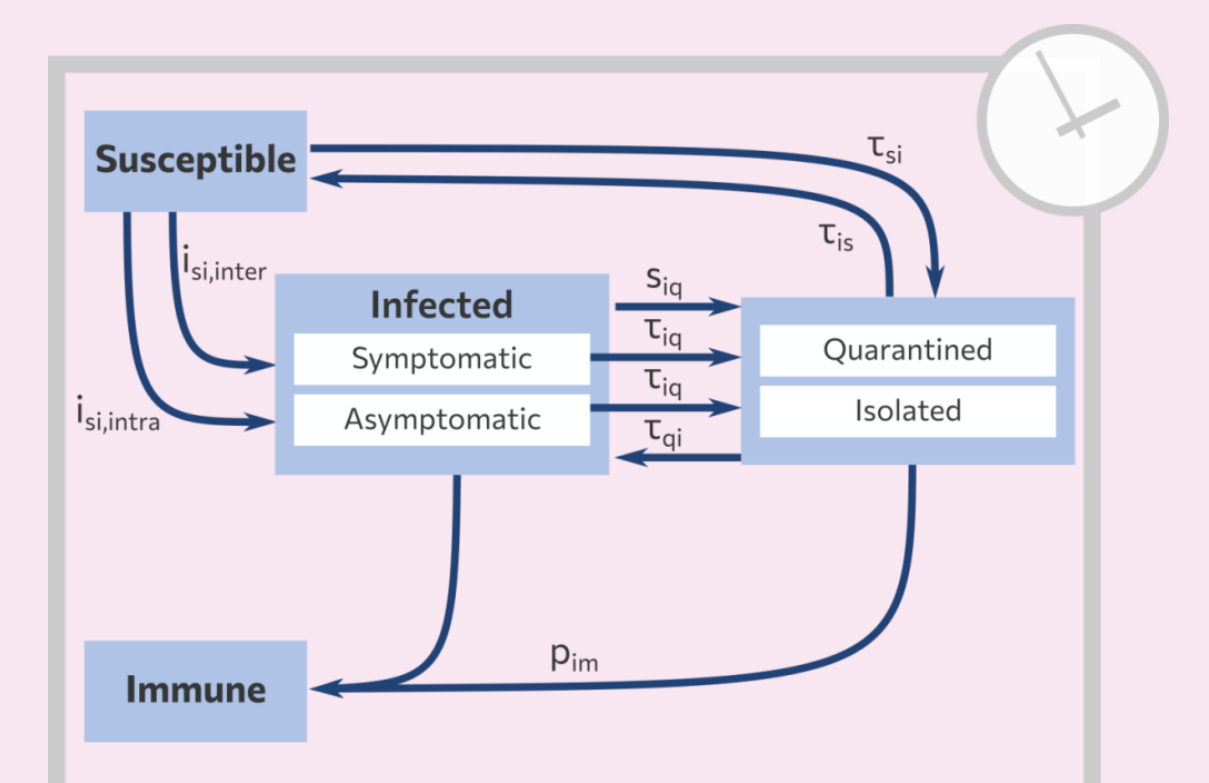
COMPUTER MODELS

Differential Equation Models



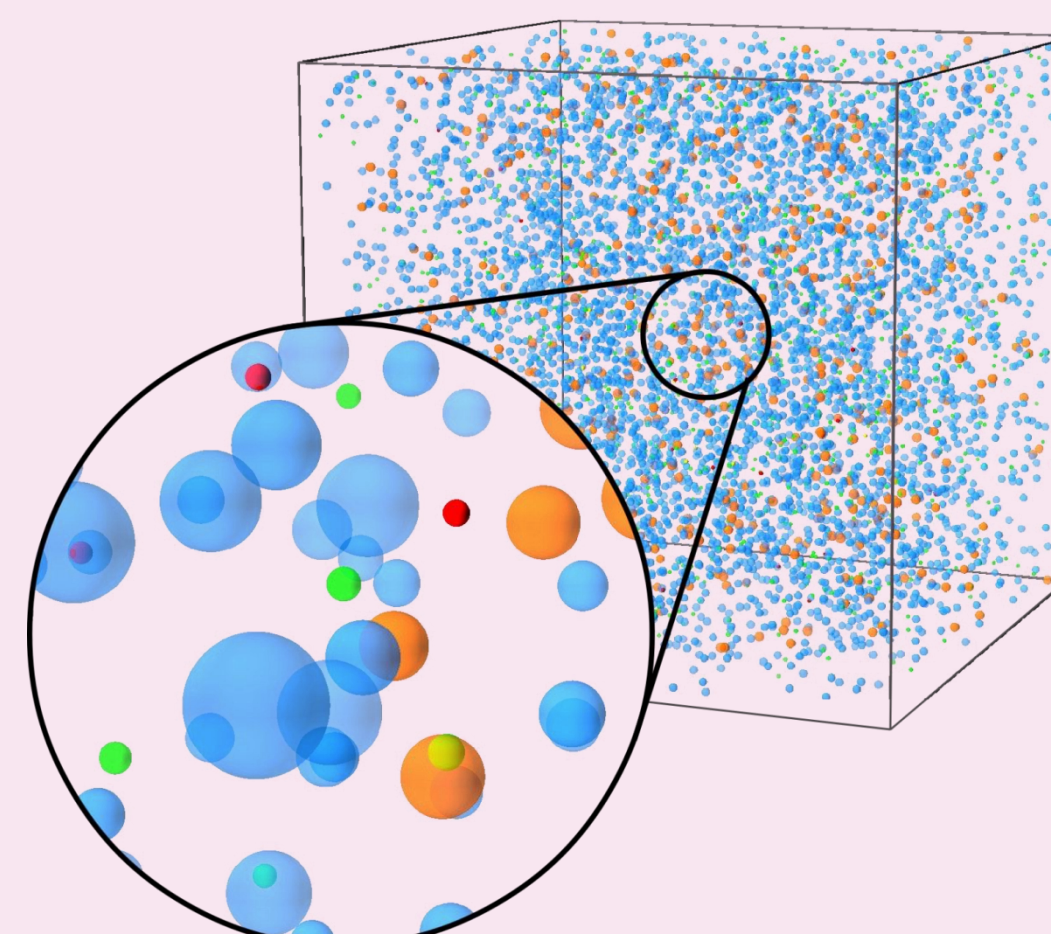
Dynamics of the complement system

State-Based Models

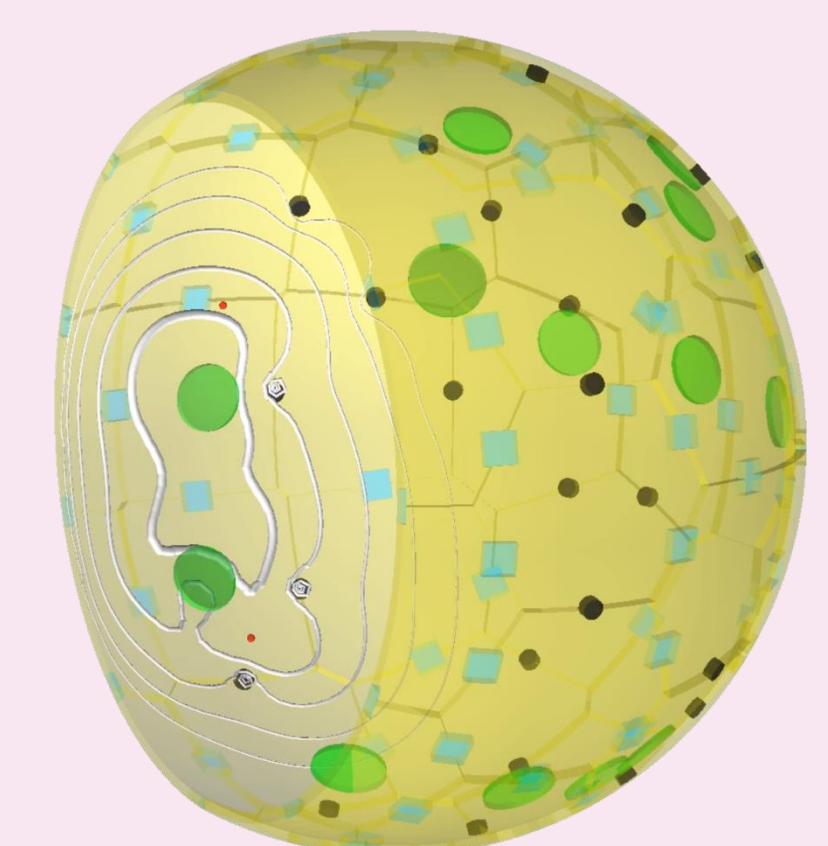


Simulation of COVID-19 hygiene concepts in kindergartens

Agent-Based Models

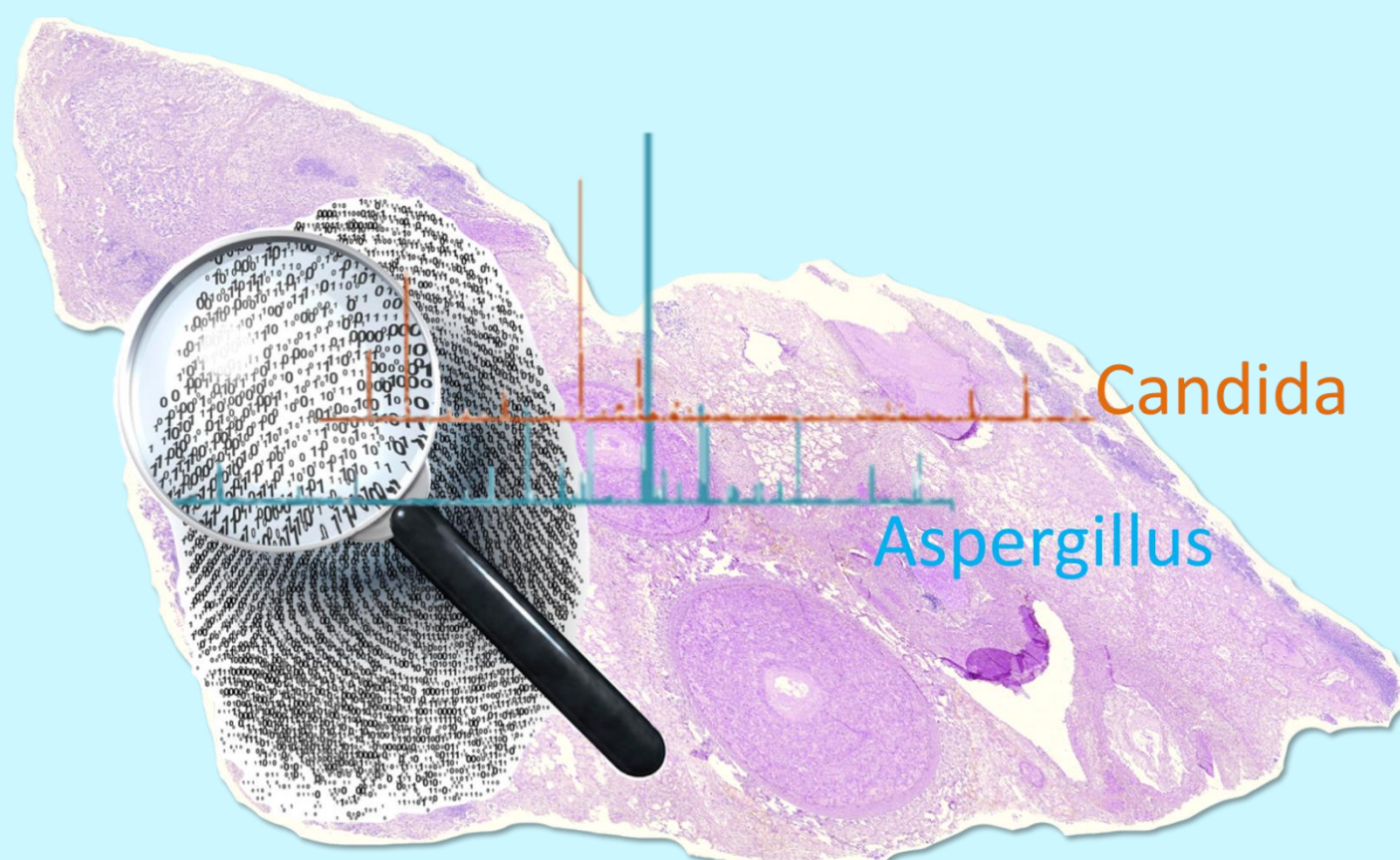


Virtual whole-blood model with *C. albicans*



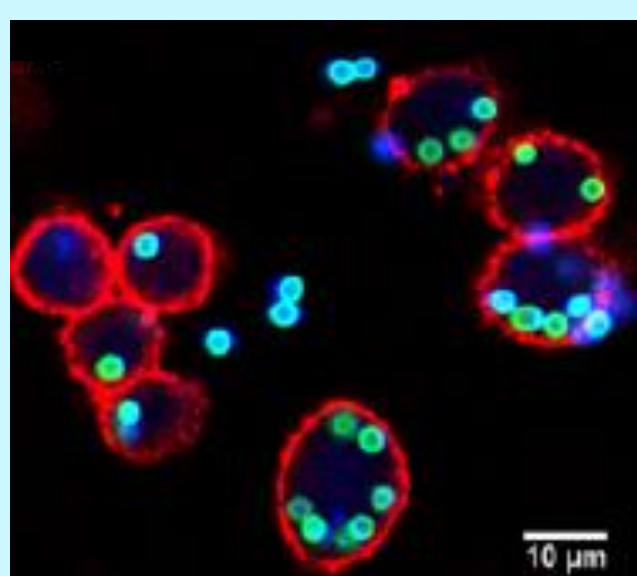
Virtual alveolus model with *A. fumigatus*

Machine and Deep Learning

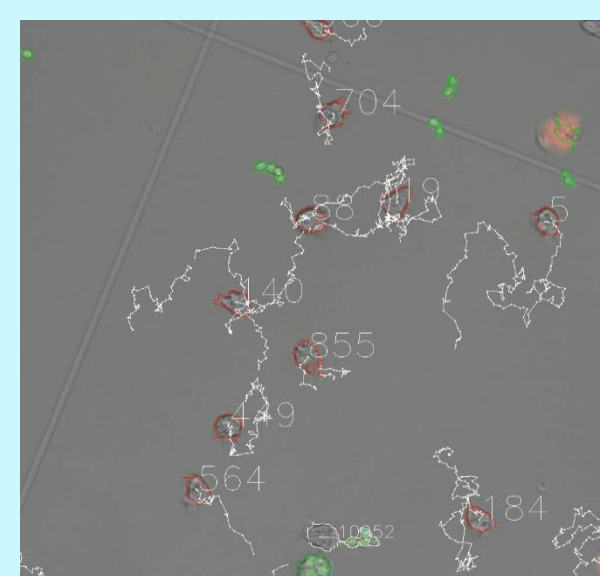


Diagnosis of fungal-infected tissue sections by machine learning

Classical Image Analysis

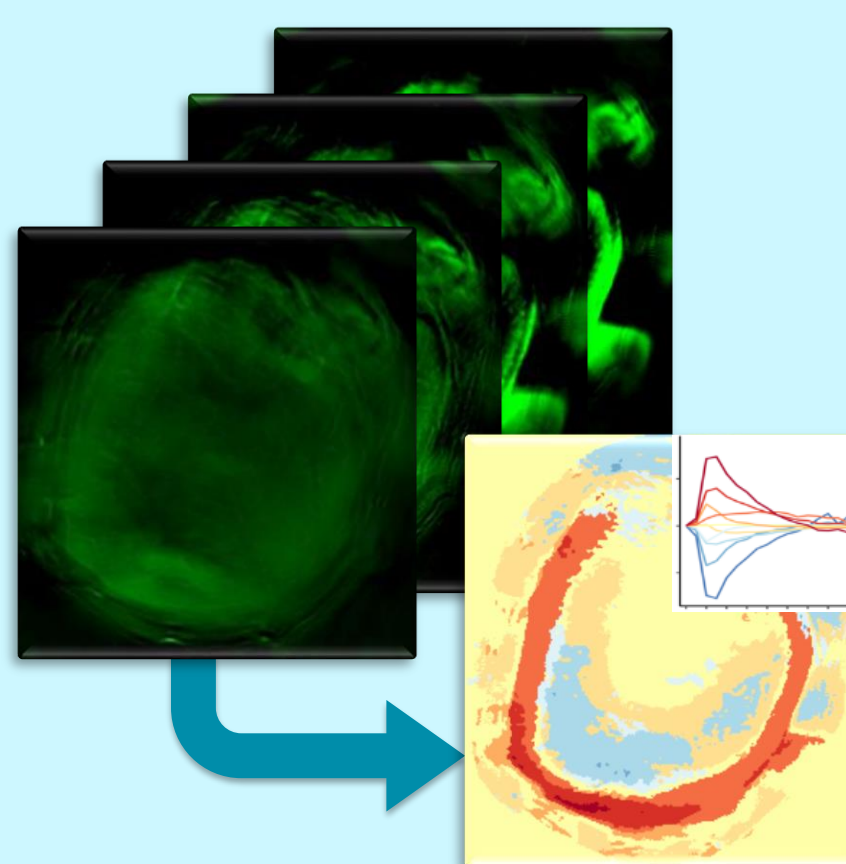


Host-pathogen confrontation assays

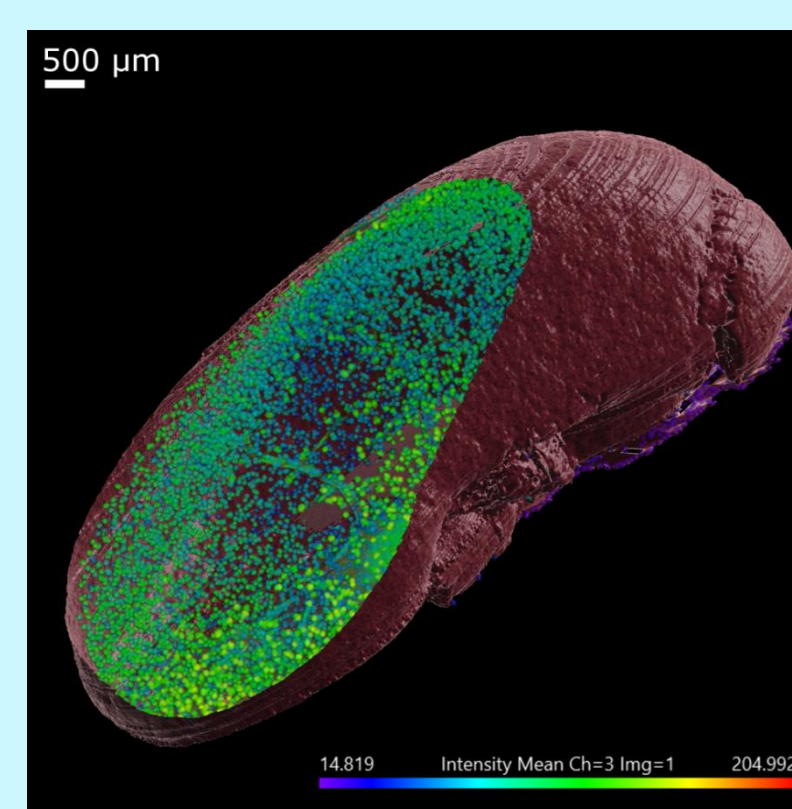


Visualization and analysis of organ-on-chip experiments

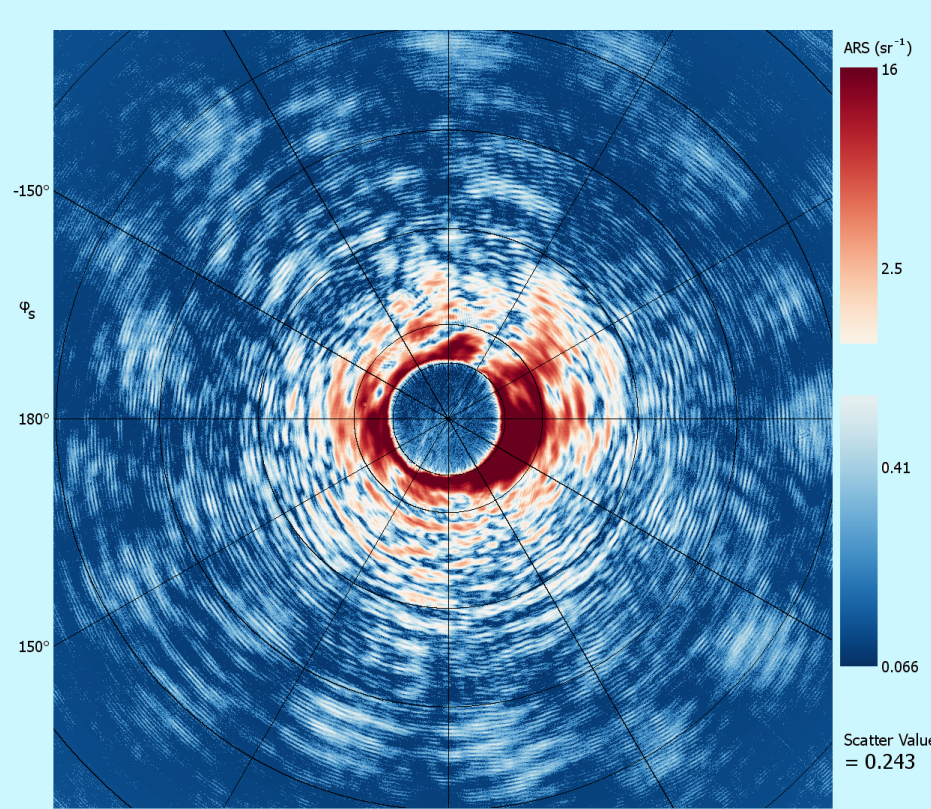
Analysis of Novel Imaging Modalities



Multispectral optoacoustic tomography



Whole-organ imaging by light sheet microscopy



Angle-resolved light scattering of microfluidic droplets

Internal collaboration partners :

- Prof. A. Brakhage, Molecular and Applied Microbiology
- Prof. O. Kurzai, Fungal Septomics
- Prof. M. von Lilienfeld-Toal, Infections in Hematology/Oncology
- Prof. M. Agler-Rosenbaum, Bio Pilot Plant

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- Dr. Schröder, Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Jena
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- Prof. O. Kurzai, Fungal Septomics
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- Prof. J. Liese, Paediatric Infectious Diseases and Immunology, University Hospital Würzburg